WHAT IS CLAIMED IS:

1.   A method for selecting an operating mode for a frame-based
5   communications network consisting of a plurality of stations
attached to a transmission medium, the plurality of stations
including both a first type station and a second type station,
the first type station being capable of transmitting and
receiving first protocol frames in accordance with a first
10   protocol, the second type station being capable of transmitting
and receiving both first protocol frames and second protocol
frames in accordance with a second protocol, the first protocol
and the second protocol each using different signals on the
transmission medium, the first type station not being capable of
15   reliably detecting second protocol frames, the first protocol
having a first protocol frame format containing at least two
reserved bits in a first protocol frame header which are ignored
in received frames by first type stations and always sent with
a same fixed value by first type stations, comprising:
20   each second type station containing a first protocol detect
flag cleared upon initialization, a first protocol signalled flag
cleared upon initialization, a first protocol detect timer, a
first protocol signalled timer, and a periodic link indication
timer with a link indication period common to all second type
25   stations, and
        redefining the first protocol frame format to provide an
updated first protocol frame header wherein two reserved bits in
the first protocol frame header are allocated as a mode selection
indicator field in the updated first protocol frame header, the
30   mode selection indicator field having meaning for second type
stations to include for the two reserved bits:
        a first protocol only value equal to a fixed value of
a mode selection field transmitted by first type stations and
being reserved for transmission only by first type stations,
35   a first protocol signalled value,

-212-

a first protocol detect value, the first protocol signalled value and the first protocol detect value being defined for transmission by second type stations, and

an unused value,

each first type station transmitting frames periodically in accordance with the first protocol frame format, the mode selection indicator field being set to the first protocol only value in transmitted frames, and an interval between frame transmissions being comparable a link indication period common to second type stations;

each second type station, upon receiving a first protocol frame including the mode selection indicator field set to the first protocol value only, setting the first protocol detect flag to set, and starting, or restarting if already running, the first protocol detect timer to expire after a first protocol detect period;

each second type station, upon receiving a first protocol frame including the mode selection indicator field set to the first protocol detect value, or upon transmitting a first protocol frame including the mode selection indicator field set to the first protocol detect value, setting the first protocol signalled flag to set, and starting, or restarting if already running, the first protocol signalled timer to expire after a first protocol signalled period;

each second type station, upon the expiration of the first protocol detect timer, clearing the first protocol detect flag to cleared;

each second type station, upon the expiration of the first protocol signalled timer, clearing the first protocol signalled flag to cleared; and

each second type station determining type of frame to be transmitted, wherein:

second protocol frames are sent if both the first

protocol detect flag and the first protocol signalled flag are cleared, otherwise first protocol frames are sent,

5   wherein when sending a first protocol frame, the second type station setting the mode selection indicator field in transmitted first protocol frames to the first protocol detect value if the first protocol detect flag is set, otherwise setting the mode selection indicator field to the first protocol

10 signalled value in transmitted first protocol frames if the first protocol signalled flag is set, and the second type station, upon determining that either the first protocol detect flag or the first protocol signal flag is set, sending at least one frame with a destination address set to broadcast each time the

15 periodic link indicator timer expires.

2.   The method of Claim 2, wherein the first type station operates in accordance with an HPNA V1.0 protocol, the second type station operates in accordance with an HPNA V2.0 protocol.

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3.   The method of Claim 1, wherein second type stations may send and receive frames of a compatibility protocol based on a combination of the first protocol and the second protocol and having determined that either the first protocol detect flag or

25 the first protocol signalled flag is set may use compatibility protocol frames instead of the first protocol frames when the intended receiving station is also a second type station.

4.   The method of Claim 2, wherein second type stations, having

30 determined that either the first protocol detect flag or the first protocol signalled flag is set, may use compatibility protocol frames having gapped format frames instead of first protocol frames when transmitting frames to other second type stations.

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5.   The method of Claim 1, wherein:

a second type station, upon receiving a first frame after
restarting or after a long period without receiving any frames,
the mode selection indicator field in the first frame being set
to the first protocol signalled value, setting its first protocol
detect flag to set and setting the first protocol detect timer
to a first protocol detect reset interval, the first protocol
detect reset interval being long enough for the station to
transmit one or more frames as a result of a link integrity timer
expiration, which frames will contain the first protocol detect
value in the mode selection indicator field, thereby resetting
the first protocol signalled timers in all second type stations.

6.   The method of Claim 1, wherein:

a second type station, upon receiving a first frame after
restarting or after a period without receiving any frames, the
mode selection indicator field in the first frame being set to
the first protocol signalled value, setting the first protocol
detect flag to set and setting the first protocol detect timer
such that resulting the second type station transmits two frames
as a result of a link integrity timer expiration, the two frames
containing first protocol detect value in the mode selection
indicator field, thereby resetting the first protocol signalled
timers in all second type stations.